2022 Mid-Continent Transportation Research Symposium
Ames, Iowa
September 14–15, 2022
intrans.iastate.edu/events/midcon2022/

Degree of Deterioration in Mechanical and Geological Parameters of Aggregates in Iowa under Traffic Loading

Kanika Lamba, Iowa State University
Jeramy Ashlock, Iowa State University
Bora Cetin, Michigan State University
Franciszek Hasiuk, Kansas State University

Abstract

Majority of Iowa's county, about 73 %, roads are granular surfaced roads. The aim of this study is to understand the degradation of aggregates on the granular surfaced roads, over time, in Iowa due to weather conditions and traffic loading. Samples of coarse aggregates were collected from test sections of gravel roads over a period of 2 years. Geotechnical and geological tests were performed on the collected aggregates along with 2D scanning of these aggregates. From these tests results and image analyses, breakage parameters, Hardin's total breakage and Hardin's breakage potential, change in shape parameters of aggregates, like roundness, sphericity, form factor and shape, and change in geological parameters are obtained. The degree of deterioration of the above-mentioned parameters of aggregates is evaluated and presented in this poster.